

AMENDMENTS TO THE SPECIFICATION

Please rewrite the paragraph bridging pages 6 and 7 (page 6, line 19 to page 7, line 3) to read as follows:

The compositions and methods of the present invention can be applied to a wide variety of surfaces, including both metallic and non-metallic surfaces of aircraft, which prevents icing, removes frozen water from the surface and prevents its reformation. The invention provides for a deicing composition that can be used on airport runways, bridges, streets, other structures including power lines and industrial equipment and the like. Further, the compositions can be used in heat transfer applications such as, but not limited to, vehicular radiator systems such as automobile radiator coolants, air conditioning systems such as air conditioner fluids and systems for transferring process heat and systems for recovery of heat from process or process or power generation systems such as process heat transfer fluids, and in other applications in which it is vital or desired to maintain a liquid in the unfrozen state, e.g., as in a fire extinguisher or in well drilling fluids, such as those used in drilling for oil and gas. Additionally, the present invention provides for an anti-icing composition that can be applied to a surface, such as bridges, prior to the onset of icing conditions in order to prevent icing from occurring. Other exemplary surfaces on which the deicing and/or anti-icing compositions of the present invention may be applied include pedestrian walkway, vehicular roadway, highway, bridge, parking facility, aircraft wings, aircraft fuselage, aircraft tail surfaces, airport runway, airport taxiway, a deck or superstructure of a ship and weather exposed industrial equipment such as conveyor systems, storage facilities, support systems and lines for transmission of electric power or electronic signals, and exposed machinery and exposed processing equipment; and surfaces of particles such as coal, ores, sand and gravel.

Please rewrite the first full paragraph (at lines 4-6) on page 7 of the application to read as follows:

Still further, the compositions of the present invention can be used as a deicer and/or anti-icer for pre-harvest fruit and vegetable crops, buds of fruit trees or other vegetation, such as, but not limited to, recreational surfaces or golf course greens.

Please rewrite the second full paragraph (at lines 22-26) on page 11 of the application to read as follows:

Once the glycerol and biodiesel phases have been separated, the excess alcohol in each phase is removed via flash evaporation process or by distillation, such as in a fractional distillation process conducted at low pressure or under a vacuum. In other systems, the alcohol is removed and the mixture neutralized before the glycerol and esters have been separated. In either case, the alcohol is recovered using distillation equipment and is re-used. In this manner, the glycerol containing by-product comprises a transesterification reactor effluent from which unconverted methanol has been at least partially stripped for recovery and/or recycling.

Please rewrite the second full paragraph (at lines 12-22) on page 12 of the application to read as follows:

In preferred embodiments, the base catalyst that is employed in the transesterification reaction is neutralized prior to use of the biodiesel by-product as a deicing and/or anti-icing agent. The base catalyst may be neutralized with any acid, although, generally in commercial reactions with triglycerides to produce products such as biodiesel, soaps and/or fatty acids, the catalyst is neutralized by addition of an inorganic acid such as hydrochloric acid. In the practice of the present invention, the present inventors have found that it is preferred to neutralize the base catalyst with an organic acid, such as, but not limited to acetic and/or lactic acid. Of course, other organic acids such as, but not limited to carbonic,

hydroxycarboxylic, carboxylic and/or dicarboxylic acids can be employed as neutralizing agents in accordance with present invention.

Please rewrite the third full paragraph (at lines 18-28) on page 13 of the application to read as follows:

The amount of triglyceride processing by-product deicing or anti-icing composition of the present invention that is required to be effective in the total deicing or anti-icing agent can vary over a considerable range. Preferably the amount varies in the range of from 2 to about 100 weight percent based on the weight of the total composition. For example we have found that addition of as little as 3% glycol to a 27% magnesium chloride solution can reduce the eutectic freezing point from -35C to -46C. In other cases, the formulation may consist entirely of the by-product material. For example a composition of 32% glycerol, 22% NaCl in water (typical of a saponification by-product) has a freezing point of -32C which is substantially below the -21 eutectic of NaCl. In solid formulations, the triglyceride processing by-product deicing and/or anti-icing composition may comprise as much as 100% of the final formulation to be added to the solid carrier material.

Please rewrite the fourth full paragraph (at lines 23-28) on page 14 of the application to read as follows:

Other hydroxyl-containing compounds useful in the practice of the present invention are sorbitol and other hydrogenation products of sugars, monosaccharides, maltodextrins and sucrose such as maltitol, xylitol, sorbitol and mannitol, or mixtures thereof; glycols such as ethylene glycol, diethylene glycol, dipropylene glycol and propylene glycol, and mixtures thereof; glycerols; and monosaccharides, such as glucose, fructose and mixtures thereof. These materials are available commercially and are well known to those of ordinary skill in the art.

Please rewrite the third full paragraph (at lines 9-14) on page 15 of the application to read as follows:

The hydroxycarboxylic acid salts that are useful in accordance with the present invention are available commercially and are known to those skilled in the art. Preferred hydroxycarboxylic acid salts comprise the sodium and potassium salts of lactic acid such as sodium lactate and potassium lactate and gluconic acid. However, any of the cesium, sodium, potassium, calcium and/or magnesium salts of hydroxycarboxylic acids may be employed such as sodium gluconate.

Please rewrite the fifth full paragraph (at lines 20-24) on page 15 of the application to read as follows:

Also useful as a deicing component in certain of the compositions of the present invention are the high solubility carbonic acid salts. Preferred carbonate salts for use in the practice of the present invention are potassium carbonate, potassium bicarbonate, sodium carbonate, sodium bicarbonate and cesium carbonate. Potassium carbonate is especially preferred.

Please rewrite the paragraph bridging pages 18-19 (from page 18, line 20 to page 19, line 2) of the application to read as follows:

In the methods of the present invention, the deicing and/or anti-icing compositions of the present invention are applied, such as by spraying for liquid forms or spreading for solid forms, onto the surface desired to be treated. In the case of solid forms, the deicing or anti-icing composition can be absorbed or adsorbed onto an inert solid or binder, such as cinders, sand, sawdust, gravel and mixtures thereof; or can be absorbed or adsorbed onto a solid deicing material such as sugars, maltodextrins, inorganic salts (such as sodium chloride, magnesium chloride, calcium chloride, trona and mixtures thereof), organic salts (such as sodium or potassium salts of formic acid, acetic acid, lactic acid,

calcium magnesium acetate and mixtures thereof); or the solid format can be achieved by processing the composition employing a procedure for converting a liquid to a solid, such as palletizing, prilling, flaking, macerating and combinations thereof. In the case of deicing, the surface already has ice formed thereon, and the deicing compositions of the present invention melt the ice already formed and are further effective in preventing additional ice formation. In the case of anti-icing, upon learning of a weather forecast that predicts possible dangerous icing conditions, the roads, bridges, airplanes, runways, growing produce or other surfaces can be pretreated with the anti-icing compositions of the present invention in similar manner in order to prevent ice formation on the treated surfaces.